Remarks

The Office Action dated January 7, 2009, has been carefully reviewed and the following remarks have been made in consequence thereof.

Claims 1-27 are pending in this application. Claims 1-27 are rejected. It is respectfully submitted that the pending claims define allowable subject matter.

Turning to the current rejection of the claims, Claims 1-27 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over DeBoer et al. (U.S. Patent App. No. 2004/0208118) in view of Anderson et al. (U.S. Patent No. 5,838,924).

Claim 1 recites a sub-network connection system that includes line modules configured to receive bridged traffic signals over individual corresponding channels. The line modules are grouped into sets at a lower protection layer. The sets of line modules are organized into working legs and protection legs at an upper protection layer. The line modules are activated/deactivated based on different upper and lower protection schemes associated with the upper and lower protection layers. State maps are associated with each of the line modules. The state maps store state data that activates and deactivates the line modules. The state maps are updated in accordance with the lower protection scheme to perform **intra-leg switching** between the line modules in one of the working and protection legs. The state maps are updated in accordance with the upper protection scheme to perform **inter-leg switching** between a first line module in one of the working and protection legs and a second line module in another of the working and protection legs. A network control module is interconnected with the line modules. The network control module performs inter-leg switching by updating the state data in the state maps for corresponding line modules in associated working and protection legs.

Claim 15 recites a method for protection switching in a sub-network connection. The method includes receiving traffic signals at line modules that are grouped into sets, where the sets of line modules are organized into working legs and protection legs, and storing state data in state maps associated with each of the line modules. The method further includes inter-leg switching between a first line module in one of the working and protection legs and a second line module in another of the working and protection legs by updating the state maps in accordance

2

with an inter-leg protection scheme, and activating and deactivating the line modules based on updates to the state maps.

The previous Office Action dated June 30, 2008 admitted on Page 7 that DeBoer does not disclose "[a] sub-network connection system, comprising: line modules configured to receive bridged traffic signals over individual corresponding channels, the line modules being grouped into sets at a lower protection layer, the sets of line modules being organized into working legs and protection legs at an upper protection layer, wherein the line modules are activated/deactivated based on different upper and lower protection schemes associated with said upper and lower protection layers." The previous Office Action also admitted on Page 7 that DeBoer does not disclose "a network control module interconnected with the line modules."

The present Office Action admits on Page 8 that DeBoer does not disclose "line modules configured to receive bridged traffic signals over individual corresponding channels." However, the present Office Action, in contrast to the previous Office Action, now asserts that DeBoer describes "the line modules being grouped into sets at a lower protection layer, the sets of line modules being organized into working legs and protection legs at an upper protection layer, wherein the line modules are activated/deactivated based on different upper and lower protection schemes associated with said upper and lower protection layers."

To support this rejection, the Office Action asserts, as best understood by the Applicant, that Figure 4a of DeBoer describes both an upper and a lower protection layer. Applicant disagrees. As stated by DeBoer, "FIG. 2 is a sub-network of the network of FIG. 1," and "FIG. 4a is a protection signaling scheme on the subnetwork of FIG. 2." As shown in DeBoer Figure 2, the network elements (NE) are coupled in series using a single communication pathway. It is clear from Figure 2 that DeBoer does not describe <u>sets of line modules being organized into working legs and protection legs at an upper protection layer.</u> Specifically, Figure 2 does not describe any protection layers.

In contrast to the teachings of DeBoer, the Office Action, on Page 3, asserts that <u>F</u>igure 4a of DeBoer does describe that "sets of line modules are organized into working legs and protection legs at an upper protection layer. The line modules are activated/deactivated based on different upper and lower protection schemes associated with the upper and lower protection layers." Applicant again disagrees. DeBoer Figure 4a does NOT describe both an upper and a lower protection layer. In contrast, DeBoer clearly describes a single protection layer. The

single protection layer described by DeBoer includes the working paths between the OCC's and the protection paths between the same OCC's.

Applicant submits that the Office Action fails to provide adequate recitations to DeBoer to allow the Applicant a fair and reasonable opportunity to respond to the rejection. For example, while DeBoer is clearly described, the Office Action fails to clearly state what elements in DeBoer are being cited to reject the pending claims. For example, the Office Action does not provide a single reference number utilized by DeBoer to enable the Applicant to determine which part of the system described by DeBoer is being asserted to reject the pending claims. More specifically, which elements of DeBoer is the Office Action asserting describe an upper protection layer and a lower protection layer. Moreover, the Office Action does not provide a single reference number to enable the Applicant to determine which part of DeBoer is asserted to describe the working and protection legs in the upper and lower protection layers. In contrast, the Office Action continuously references DeBoer Figure 4a without clearly citing which elements are being used to reject the pending claims. As such, Applicant submits that any future correspondence that is not a Notice of Allowance should include specific reference numbers in DeBoer that the Office Action is asserting are the same as the claim elements recited in the pending claims.

Regarding, the state maps recited in Claim 1, DeBoer describes and illustrates in Figure 4b, examples of the contents of various maps described by DeBoer. One such map, described above, clearly states that map M1 is stored at controller OCC1 and contains a working W path A-B between elements 1 and 2 (AB-W-12) and a protection P path for the working path A-B identified as containing network elements 1342 (AB-P-1342). This map clearly shows that switching is accomplished between the working path, i.e. one leg of the protection scheme, to the protection path, i.e. another leg of the protection scheme. <u>DeBoer does not describe line modules are activated/deactivated based on different upper and lower protection schemes associated with the upper and lower protection layers</u>. Therefore, <u>DeBoer also does not describe state maps are updated in accordance with the lower protection scheme to perform **intra-leg switching** between the line modules in one of the working and protection legs</u>.

However, on Page 4, the Office Action asserts that DeBoer does disclose "state maps being updated in accordance with the lower protection scheme to perform **intra-leg switching** between line modules in one of the working and protection legs." Again, the Office Action refers to Figure 4a to support this rejectiono. The Office Action also asserts that DeBoer

describes "the state maps being updated in accordance with the upper protection scheme to perform **inter-leg switching** between a first line module in one of the working and protection legs and a second line module in another of the working and protection legs."

As stated previously, Applicant respectfully submits that since DeBoer does not describe the sub-network connection system recited in Claim 1. As such, DeBoer also does not describe state maps that are used in such a system. More specifically, DeBoer does not disclose "the line modules being grouped into sets at a lower protection layer, the sets of line modules being organized into working legs and protection legs at an upper protection layer, wherein the line modules are activated/deactivated based on different upper and lower protection schemes associated with said upper and lower protection layers." Therefore, DeBoer can not disclose "state maps are updated in accordance with the lower protection scheme to perform **intra-leg switching** between the line modules in one of the working and protection legs. The state maps are updated in accordance with the upper protection scheme to perform **inter-leg switching** between a first line module in one of the working and protection legs and a second line module in another of the working and protection legs" as recited in Claim 1.

DeBoer does not describe state maps that perform both inter-leg switching and intra-leg switching. In contrast to the recited claims, DeBoer describes and illustrates in Figure 4a a simplified shared mesh network structure. The shared path protection set-up of the sub-network E consists of a series of network elements 14 indicated as 1, 2, 3, 4, 5, 6 with a corresponding number of OCC's (Optical Connection Controller) (OCC) 28 indicated as OCC 1, OCC 2, OCC 3, OCC 4, OCC 5, and OCC 6. The elements 1, 2, 3, 4, 5, 6 are interconnected by the conduits 16, logical and/or physical, with solid line paths A-B and C-D denoting working W paths and the dotted line paths 1-3-4-2 and 5-3-4-6 between the elements 1, 2, 3, 4, 5, 6 denoting potential protection P paths. (Paragraph 40, lines 1-11). DeBoer also describes that each controller OCCn has stored a corresponding map Mn of all network elements 1, 2, 3, 4, 5, 6 used in the path containing the associated conduits 16. These connection maps Mn are indicated in FIGS. 4a, b as M1, M2, M3, M4, M5, M6, which contain connection information for all network elements 1, 2, 3, 4, 5, 6 contained in both working W and protection paths P. Referring to FIG. 4b, various example nodal maps Mn are presented that correspond to the network structure of sub-network En of FIG. 4a. For example, map M1 is stored at controller OCC1 and contains a working W path A-B between elements 1 and 2 (AB-W-12), and a protection P path for the working path A-B identified as containing network elements 1342 (AB-P-1342). (Paragraph 41, lines 1-14).

The Office Action asserts that is would be obvious to modify the system of DeBoer using the features as taught by Anderson. Applicant disagrees. As discussed above, DeBoer describes a 1:N protection scheme. Moreover, Anderson also describes a 1:N protection scheme. Since neither DeBoer nor Anderson describes the network recited in the claims, the claims are patentable over the combination of DeBoer and Anderson.

Moreover, it is respectfully submitted that Anderson does not describe that line modules are grouped into sets at a lower protection layer, the sets of line modules are organized into working legs and protection legs at an upper protection layer, or that the line modules are activated/deactivated based on different upper and lower protection schemes associated with the upper and lower protection layers. Moreover, Anderson does not describe that state maps associated with each of the line modules, the state maps store state data that activates and deactivates the line modules, the state maps are updated in accordance with the lower protection scheme to perform intra-leg switching between the line modules in one of the working and protection legs, or that the state maps are updated in accordance with the upper protection scheme to perform inter-leg switching between a first line module in one of the working and protection legs and a second line module in another of the working and protection legs.

Since neither DeBoer nor Anderson describe a lower and upper protection scheme as recited in Claims 1 nor does Anderson describe inter-leg switching between a first line module in one of said working and protection legs and a second line module in another of said working and protection legs as recited in Claim 15, Anderson does not make up for the deficiencies of DeBoer with respect to Claims 1 and 15.

With respect to Claim 2, as admitted in the Office Action, DeBoer does not disclose the recitations of Claim 2. Moreover, Anderson does not describe the recitations of Claim 2. Anderson describes a single a source node 101, a single intermediate node 102, and a single destination node 103. Since, Anderson does not describe line modules being grouped into sets at a lower protection layer, and that the sets of line modules are organized into working legs and protection legs at an upper protection layer. Anderson also does not describe that the line modules constitute I/O boards, nor does Anderson describe that the network control module performs a switch operation between a working I/O board in the working leg and a working I/O board in the protection leg when a defect is experienced in a traffic signal. Accordingly, Claim 2 is therefore submitted to be patentable over DeBoer and Anderson.

With respect to Claims 3-5, 9, 11, 16, 17, 20, 23, 24, 27 as admitted in the Office Action, DeBoer does not disclose the recitations of Claim 1 or Claim 15. Moreover, since Anderson does not describe <u>a lower and upper protection scheme</u> as recited in Claims 1 nor does Anderson describe inter-leg switching between a first line module in one of said working and protection legs and a second line module <u>in another</u> of said working and protection legs as recited in Claim 15, Claims 3-5 are therefore submitted to be patentable over DeBoer and Anderson.

Turning to the remaining dependent claims, DeBoer and Anderson fail to teach or suggest each and every limitation included in the dependent claims. Accordingly, Claims 6-8, 10, and 12-14 depending from Claim 1 and Claims 18, 19, 21, 22, 25, and 26 depending from Claim 15 define allowable subject matter.

In view of the foregoing remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,

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